

California Regional Water Quality Control Board  
Santa Ana Region

May 31, 2002

**ITEM:** 12

**SUBJECT:** Orange County Sanitation District Strategic Process Studies

**DISCUSSION:**

The Orange County Sanitation District (OCSD) operates a 120-inch ocean outfall which currently discharges up to 240 million gallons per day of treated wastewater into the Southern California Bight, 4.5 miles off the Huntington Beach shoreline at a depth of 200 feet. Order No. 98-5, NPDES No. CA 0110604, waste discharge requirements for OCSD, requires that the effects of this discharge on the marine environment must be evaluated. Monitoring and Reporting Program No. 98-5 requires OCSD to conduct ocean monitoring to assess the effects of the discharge in the vicinity of the outfall.

The effects of OCSD's discharge on the marine environment are monitored through a comprehensive ocean-monitoring program conducted by OCSD. This program is structured to not only measure compliance with numeric and narrative standards of the California Ocean Plan, but also to monitor, measure and evaluate the marine communities that may be affected by the discharge. Benthic organisms, living in ocean sediments, and demersal fish, those that live near or on the ocean bottom, are included in this monitoring effort.

OCSD's ocean monitoring program is divided into three components; core monitoring, strategic process studies, and regional monitoring activities. Strategic Process Studies (SPS) represent the component of the ocean monitoring program that is purposely adaptive, and, therefore, not constrained by fixed measurement parameters that are repeated each sampling period. Instead, each year, study projects are proposed in order to address specific receiving water quality, discharge impact, or ocean process questions relating to the discharge. The scope of these study projects must first be developed and proposed by OCSD, and then, in accordance with Order No. 98-5, approved by the Regional Board and USEPA prior to implementation.

OCEAN MONITORING PROGRAM PHASE II – YEAR 3 SPS (Approved May 19, 2000)

Four strategic process study projects undertaken in Year 3 of OCSD's SPS program consisted of the continued development and/or application of physical oceanographic model(s) and complimentary field sampling aimed toward model

verification and calibration. The modeling tools derived from these studies will be used to predict the movement of OCSD's waste plume. Field sampling methodologies included the use of moored current meter/thermistor, vessel mounted acoustic doppler current profiler (ADCP), and sediment traps located on the off shore sea bed shelf and within submarine canyons.

A fifth study supplemented the Year 1 SPS effluent characterization study, by conducting further effluent composition characterization and adding a toxicity evaluation. This last study provided data to assess and evaluate the effects of brine and backwash wastewater from the proposed Orange County Water District Ground Water Replenishment System groundwater recharge project on the final effluent composition and toxicity. The data will also be useful to model future impacts associated with different volumes and concentrations of brine.

#### OCEAN MONITORING PROGRAM PHASE II – YEAR 4 SPS (Approved April 19, 2001)

OCSD conducted five SPS projects during 2001. The primary objective of four of the studies was to begin work on the development of a mathematical model(s) that will describe the movement of the treated effluent after it is discharged into the ocean, and begin to gather the information needed to validate and calibrate the model(s). These studies incorporated and continued the physical oceanographic modeling work begun during Year 3. The effort focused on evaluation and integration of available models that meet OCSD's selection criteria. The goal is to develop a model that is both predictive and diagnostic, and that can be used via the Internet. Several of these projects are collaborative efforts including private consultants, academia, and private and government research groups.

The fifth study was a series of statistical analyses on fish trawl data collected by OCSD between 1975 and 2000. Data were evaluated for spatial and temporal trends, correlations, and gradient effects that would indicate differences in growth and development of fish collected at various monitoring stations in the vicinity of OCSD's outfall discharge

#### OCEAN MONITORING PROGRAM PHASE II – PROPOSED YEAR 5 SPS

OCSD is proposing to conduct three Strategic Process Studies during the fifth year of this phase of the monitoring program. These studies are essentially the continuation of multi-year studies initiated in prior years. These studies include:

- Central Bight Regional Water Quality Monitoring Program

In conjunction with the City of Oxnard, the City of Los Angeles and the Los Angeles County Sanitation Districts, OCSD has conducted quarterly hydrographic surveys from Ventura in the north to Crystal

Cove State Beach in the south. The objective of this study is to create a single unified data set to better address regional questions related to the fate and impacts of wastewater discharges in the Southern California Bight.

- Mapping of Spatial Current Patterns

This is a continuation of the vessel mounted acoustic doppler current profiler (ADCP) work begun in Year 3. The primary objective of this study has been to obtain a series of spatial representations of currents by measuring current velocities and direction along a series of set transects. A secondary objective has been to produce a calibration and validation data set for use in modeling plume transport and fate.

- Evaluation and Application of Physical Oceanographic Models

This project entails the continuation of work begun over the past two years to evaluate existing physical oceanographic models applicable to the environment in the vicinity of OCSD's discharge. With the completion of the Huntington Beach Shoreline Contamination Investigation, Phase III the effort over the next year will focus on evaluation and application of candidate models to that data set. In addition, OCSD will continue to work on the establishment of a standing modeling workgroup consisting of federal, state and local government agencies, consultants, academia and other research agencies. The workgroup will help guide the ongoing evaluation and application of plume and coastal circulation models.

OCSD staff will present more detailed information regarding these Strategic Process Studies during the May 31, 2002 meeting.

**RECOMMENDATION:**

Adopt Resolution No. R8-2002-0056 approving OCSD's Ocean Monitoring Program Phase II – Year 5 Strategic Process Study proposal.

California Regional Water Quality Control Board  
Santa Ana Region

RESOLUTION NO. R8-2002-0056  
Orange County Sanitation District Ocean Monitoring Program  
Phase II - Year 5 Strategic Process Studies

WHEREAS:

1. Board Order No, 98-5, waste discharge requirements for Orange County Sanitation Districts (OCSD), requires that OCSD annually propose strategic studies to address specific receiving water quality, discharge impact, or ocean process questions relating to the discharge. Order No. 98-5 further requires that OCSD obtain Regional Board and USEPA approval of strategic studies proposed.
2. OCSD has submitted its proposal for Ocean Monitoring Program Phase II - Year 5 strategic process studies, which include the continuation of the following multi-year projects:
  - Evaluation and application of Physical Oceanographic Model(s).
  - Mapping of Spatial Current Patterns.
  - Central Bight Regional Water Quality Monitoring Program.
3. Regional Board staff has conferred with OCSD and USEPA staff concerning OCSD's proposed Year 5 strategic process studies.
4. Regional Board and USEPA staffs believe the proposed Year 5 studies are appropriate and within the intent of the Order No. 98-5 requirement that OCSD conduct strategic studies of the effects of its discharge on the marine environment.

THEREFORE, BE IT RESOLVED THAT:

The Ocean Monitoring Program Phase II – Year 5 strategic process studies proposed by OCSD is approved.

I, Gerard J. Thibeault, Executive Officer, do hereby certify that the forgoing is full, true and correct copy of a resolution adopted by the California Regional Water Quality Control Board, Santa Ana Region, on May 31, 2002.

---

Gerard J. Thibeault  
Executive Officer